

SNF Stabilization and Disposition (RL-0012)

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Placement of additional Ultrasonic Testing sensors during Hose-in-Hose operations



Shield window fabrication for the Sludge Treatment Project



Before



After

Removal of obstructions above the Tech View Pit in K West Basin

Overview

This section addresses work in Project Baseline Summaries (PBS) RL-0012, *Spent Nuclear Fuel (SNF) Stabilization and Disposition*.

NOTE: Unless otherwise noted, all information contained herein is as of the end of March 2007.

Notable Accomplishments

SNF Stabilization and Disposition (PBS RL-0012)

- **K East Containerization:**
 - Completed final pass vacuuming of 738 cubicles in center bay
 - Completed package preparation for demonstration of qualified process for debris handling
 - Completed preparation of BF-3 neutron detector removal package
 - Completed technical review of diver proposals
 - Initiated testing (one test) for grout combination with Thompson Mechanical
- **K West Retrieval:**
 - Removed grating above Weasel Pit and completed sludge consolidation in this area
 - Removed contaminated grating over Tech View Pit; splashed end-effector and new hoses to support sludge consolidation in this area
 - Completed sludge consolidation of center bay
 - Commenced debris removal activities removing three basin drain valve covers and staging two Konan manipulator arms for removal; loaded 3,200 lbs of waste into IP-2
- **Hose-in-Hose (HIH) Transfer:**
 - Replaced pump P-112
 - Transferred sludge from CON-102 and CON-101 until no more was retrievable without aid of internal inspection
 - Completed design and fabrication of new impellers for booster station pumps
 - Completed seal reservoir gas bottle rack installation
- **Sludge Treatment Project (STP):**
 - Received Corrosion System fabrication bids; responses reflect a significant increase in cost and schedule beyond baseline
 - Mobile Solidification System (MOSS) fabrication 93 percent complete
 - Drum Handling Systems
 - Received shield window support frame
 - Placed fabrication of shield door on hold due to extended need date driven by construction hold
 - Completed Retrieval and Transfer Systems 100 percent design gap and hazards analysis
 - Control Systems
 - General Service Control System Programmable Logic Controller (PLC) programming – 31 percent complete
 - Hardwired Safety Class Control System design – 58 percent complete
 - Equipment Installation Packages Design
 - 28 percent complete (constrained by DOE procurement hold)

Notable Accomplishments, continued

- **Sludge Treatment Project (STP), continued**
 - Performance Incentive (PI) Facility Modification Packages (FMPs)
 - Completed field work on FMP-06-29993, "Remove Bay 2 Conduit", last PI FMP active in field
 - Overall field work 21 percent complete
 - Placed indefinite hold on fabrication of new Cold Vacuum Drying Facility (CVDF) Bay 1 crane due to extended need date driven by construction hold
 - Awarded design only with option for installation contract for CVDF Bay 2/3 major wall penetration
 - Completed ramp down of construction staff
 - Nuclear Safety
 - Volume 2, Revision 0 of Preliminary Design Safety Analysis (PDSA) returned without action; RL and FH have agreed a consolidated PDSA based on final design will be prepared in support of RL Critical Decision (CD-3) review
 - Received DOE direction regarding required STP/KBC baseline adjustment
 - Completed Fluor Corporate Independent (Murphy) Review of STP and HIH; initiated identification of responses to recommendations

Issues

SNF Stabilization and Disposition (PBS RL-0012)

- **Completion of K East final pass and post transfer vacuuming is trending behind schedule due to slower than planned progress around installed equipment and small debris is causing frequent hose clogs requiring change out of the hoses.**

Mitigation In Progress:

- Execution of recovery actions to increase the vacuuming rate (additional personnel from PFP to supplement crews to manage small debris).
- Completed an additional debris campaign to remove obstructive medium sized debris from the West bay.
- Continue to monitor re-deposition of sludge; some problematic re-deposition in the East bay observed from P112 failure. Center and West bays have no issues noted.
- Maintaining spare pumps and hose inventory to facilitate quick recovery from debris plugging or pump failure.
- Issued contract with divers to assist in final pass activities; work planning in process.
- Maintaining the K East basin off mask to maximum extent.

- **HIH transfer from Tank 102 resumed on March 6, 2007, and completed March 7, 2007. Transfer from Tank 101 recommenced on March 11, 2007. Pump P-265 seized on March 20, 2007. Pump was bypassed and transfer resumed March 23, 2007, until blockage at the container outlet was indicated. Estimated sludge heel in Tanks 101 and 102 < 1 m³. Transfer from Tank 104 started March 27, 2007. As of March 31, 2007, an estimated 15.8 m³ (62 percent of bulk sludge, 55 percent of total) has been transferred. Continued working items identified in the recovery plan:**

Mitigation Completed:

- Fabrication and delivery of four redesigned replacement impellers for booster station pumps.
- Mockup for booster station pump replacement.
- Design and hazard analysis for top retrieval method.
- Installation of booster station seal gas bottle racks.
- Accelerated removal of tube settlers to perform off critical path.

Mitigation In Progress:

- Contingency preparation including pump replacement with modified impeller design; transfer of sludge via alternative methods; alternatives for replacement of other pumps.
- Replenishing spares inventory to facilitate continued quick repair cycle.

Issues, continued

- **Revisions to the K East, K West, and HH activities in response to emerging risks/mitigation actions will increase the utilization of Project Management Reserve (PMR) and project funds.**

Mitigation In Progress:

- Maintaining close control of expenditures and bottoms-up review of monthly forecast.
- Additional actions identified to make funding available should transfer operations extend past June 2007.
- Change requests in review/development to update baseline for the changes in direction and scope.

Sludge Treatment:

- **Impact of January 29, 2007, RL-directed hold on new procurements and CVDF construction starts until successful RL CD-3, "Readiness to Start Construction" review.**

Mitigation In Progress:

- Continue dialog with RL on requirements and schedule for successful CD-3 review.
- Planning for implementation of Fluor Corporate Independent Review and KBC Project STP Functional Integration Management Assessment recommendations for risk reduction actions.
- Development of detailed scope and planning of deliverables required for RL CD-3 review.
- Supported April 9, 2007, RL briefing to Defense Nuclear Facilities Safety Board (DNFSB) staff on STP status and path forward.

- **Impact of RL-directed changes (use of Design Basis Authority [DBA] for safety basis, reduction in T Plant FY 2007 support for readiness to receive drums, final Remote Handled Transuranic Waste Authorized Methods for Payload Control [RH-TRAMPAC], RL return of Volume 2, Revision 0 of STP Preliminary Documented Safety Analysis (PDSA) without action, December 2006 construction halt, etc.)**

Mitigation In Progress:

- Impacts will be addressed in baseline update required for CD-3 review.

- **Potential impacts from ten open issues identified during Corrosion System 100 percent design hazards analysis.**

Mitigation In Progress:

- British Nuclear Group, America (BNGA) has been tasked to respond to those issues falling under their responsibility.
- FH issues are being worked.

FY 2007 Funds vs. Spend Forecast (\$M)

	Projected FY 2007 Funding	FY 2007 Fiscal Year Spend Forecast	Variance
RL-0012 SNF Stabilization & Disposition	\$ 134.0	\$ 124.2	\$ 9.7

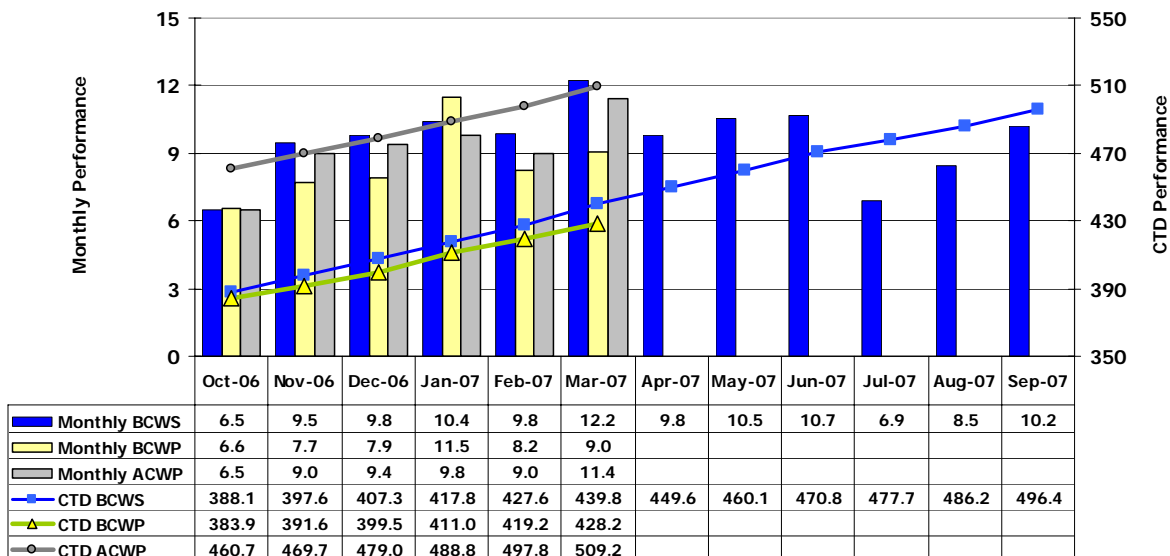
Schedule/Cost Performance (\$M)

SNF Stabilization & Disposition	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance \$	Schedule Variance %	Cost Variance \$	Cost Variance %	Budget At Completion
Current Period (Month)	\$12.2	\$9.0	\$11.4	-\$3.2	-26.0%	-\$2.3	-25.9%	\$114.8
Cumulative-to-Date (FY 2004 - Present)	\$439.8	\$428.2	\$509.2	-\$11.6	-2.6%	-\$80.9	-18.9%	\$566.2

Numbers are rounded to the nearest \$0.1M and include the closure services allocation.

- CTD Schedule Performance (-\$11.6M/-2.6%):** Delays occurred in the following activities: KE final pass vacuuming activities due to water clarity, clogging, and debris issues; K East – K West sludge transfer system due to construction, startup and operational issues; K West sludge containerization due to debris removal issues and availability of resources (shifted to higher priority work scope); Sludge Treatment design review, procurement and construction activities due to decision to implement CD-3 design requirements; and D&D hydrolasing activities due to late turnover of the basin.
- CTD Cost Performance (-\$80.9M/-18.9%):** The unfavorable CV is primarily due to problems encountered in design, implementation, startup, and operations of fuel removal, sludge containerization, transfer, and treatment systems due to underestimated system complexity and requirements.

Performance Analysis CTD and Monthly (\$M)



Milestone Achievement

Number	Milestone Title	Type (TPA/PI/ DNFSB)	Due Date *	Actual Date	Forecast Date	Status / Comments
M-034-33B (S10-05-018)	Complete K East Sludge Containerization	TPA	03/01/05	10/20/06		Complete
DNFSB 119E (S10-05-014)	Complete K East Bulk Sludge Consolidation	DNFSB	10/31/06	10/20/06		Complete 11 days ahead of milestone
M-034-34 (S10-05-010)	Complete Removal of K East Sludge	TPA	05/31/07		06/02/07	Behind schedule; recovery plan in place/progress
DNFSB 120E (S10-05-015)	Complete K East Basin Containerized Sludge Removal	DNFSB	05/31/07		06/02/07	Behind schedule; recovery plan in place/progress
DNFSB 122E	K East Final Pass Sludge Removed	DNFSB	05/31/07		06/02/07	Behind schedule; recovery plan in place/progress
M-034-35a (S10-05-011)	Containerize K West Bulk Sludge	TPA	07/31/07		07/11/07	Ahead of Schedule
DNFSB 119W (S10-05-016)	Complete K West Bulk Sludge Containerization	DNFSB	07/31/07		07/11/07	Ahead of Schedule
M-034-35b (S10-05-011)	Complete K West Final Pass	TPA	01/31/08		01/18/08	On Schedule

* DNFSB dates reflect Implementation Plan update, TPA dates reflect change package M-34-05-04, forecast dates are current working level schedules.